US012254979B2

(12) **United States Patent**
Le Vo et al.

(10) **Patent No.: US 12,254,979 B2**
(45) **Date of Patent: Mar. 18, 2025**

(54) **SYSTEMS AND METHODS FOR PROVIDING VIRTUAL HEALTH SERVICES**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **17/818,142**

(22) Filed: **Aug. 8, 2022**

(65) **Prior Publication Data**

US 2022/0399133 A1 Dec. 15, 2022

Related U.S. Application Data

(63) Continuation of application No. 17/838,802, filed on Jun. 13, 2022, which is a continuation of application No. 17/207,024, filed on Mar. 19, 2021, now Pat. No. 11,404,164.

(60) Provisional application No. 63/153,526, filed on Feb. 25, 2021, provisional application No. 63/153,030, filed on Feb. 24, 2021, provisional application No.
(Continued)

(51) **Int. Cl.**

G16H 40/67	(2018.01)
G06Q 20/10	(2012.01)
G16H 10/60	(2018.01)
G16H 40/20	(2018.01)
G16H 80/00	(2018.01)

(52) **U.S. Cl.**
CPC ***G16H 40/67*** (2018.01); ***G06Q 20/102*** (2013.01); ***G16H 10/60*** (2018.01); ***G16H 40/20*** (2018.01); ***G16H 80/00*** (2018.01)

(58) **Field of Classification Search**
CPC G16H 40/67; G16H 40/20; G16H 10/60; G16H 80/00; G06Q 20/102
USPC 705/2–3
See application file for complete search history.

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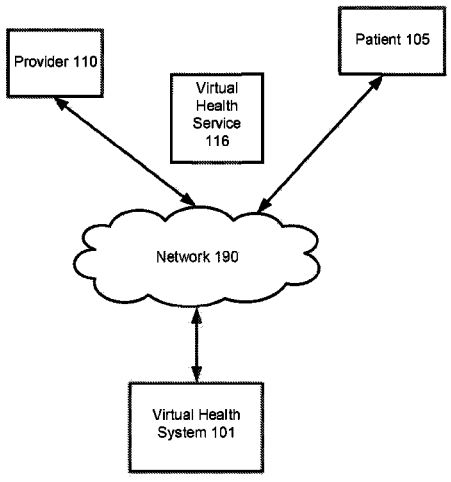
(57) **ABSTRACT**

A virtual health system is provided that creates a digital platform to connect patients to healthcare providers. Healthcare providers create profiles that describe their healthcare specialty and provide scheduling information that indicates their availability along with preferences such as appointment or meeting length, minimum break between appointment, and price. Patients create profiles that includes demographic information as well as medical records. The patients may use the system to search for available healthcare providers using a variety of criteria, and to schedule virtual health services such as video chats. The system facilitates payment for the healthcare services, and records any notes, assignments, or prescriptions generated by the healthcare provider during the services. In the event that a patient would like to engage a different healthcare provider associated with the system, the system only allows access to the patient records after receiving permission from the patient.

19 Claims, 6 Drawing Sheets



Related U.S. Application Data

63/135,152, filed on Jan. 8, 2021, provisional application No. 63/125,559, filed on Dec. 15, 2020.

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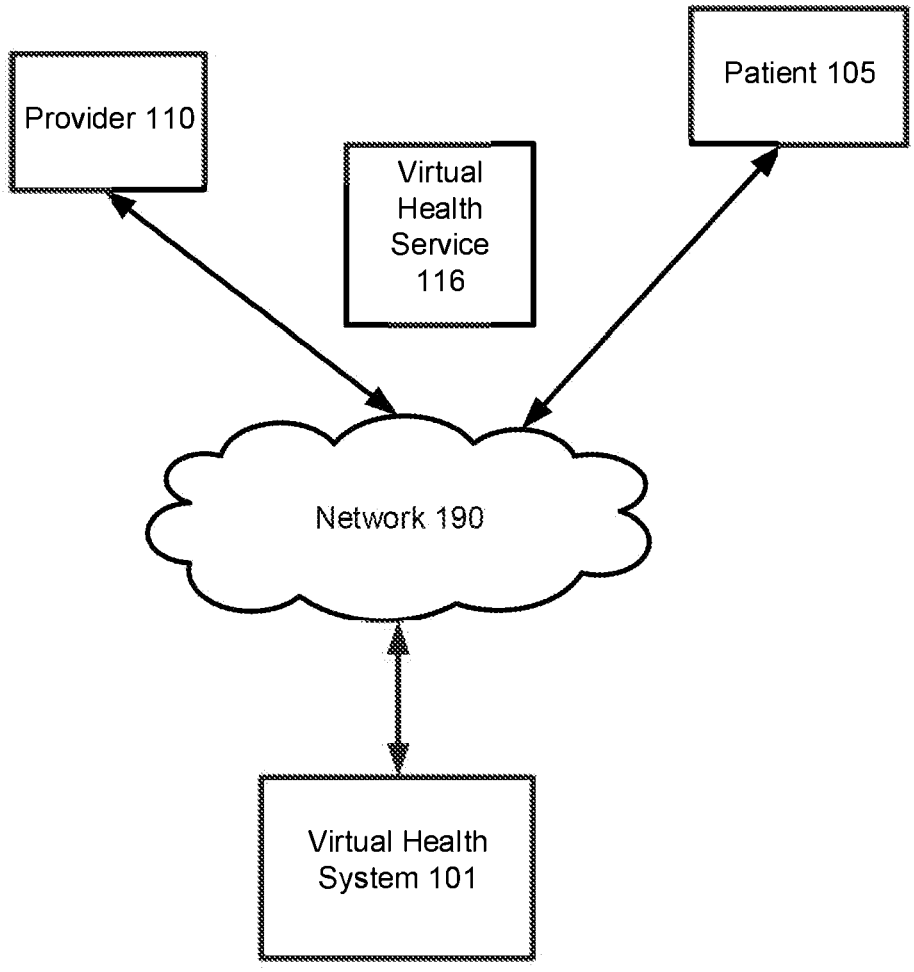
Provider 110
Virtual Health Service 116
Patient 105
Network 190
Virtual Health System 101

100

FIG. 1

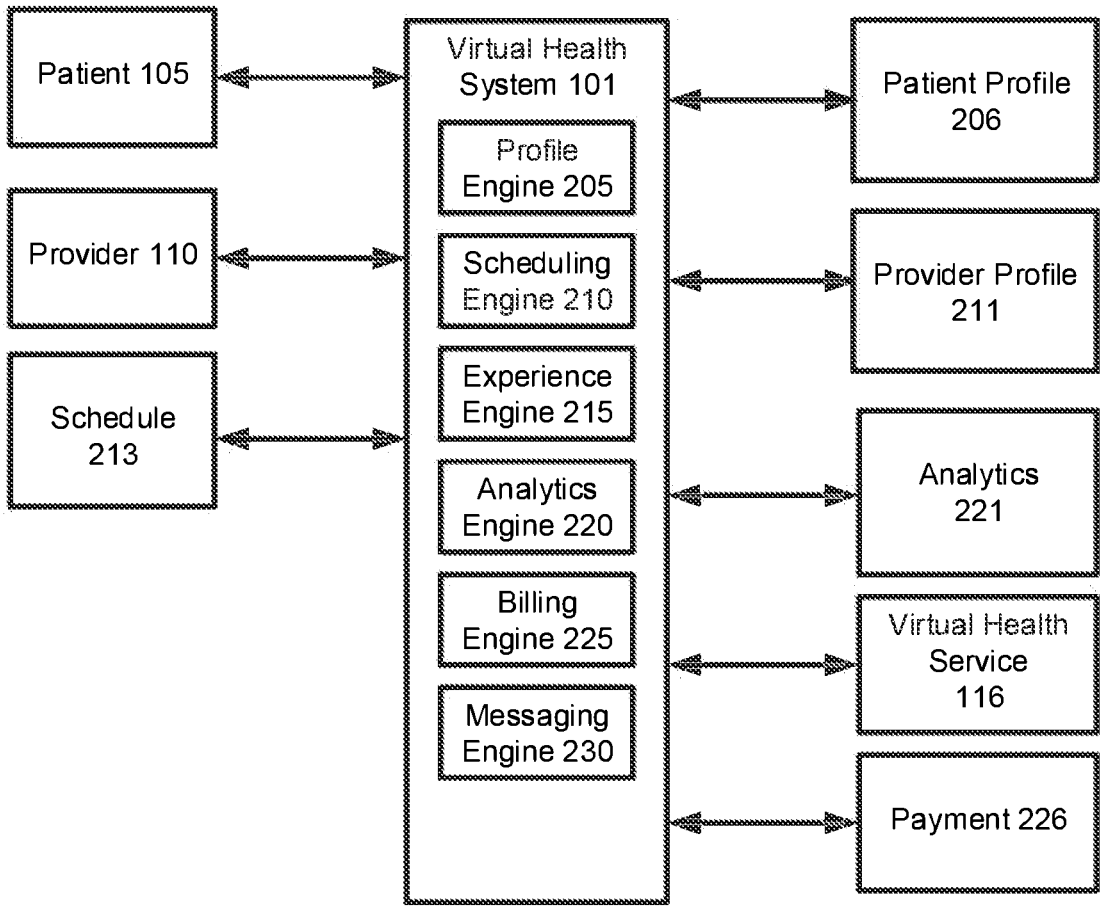
Patient 105
Provider 110
Schedule 213
Virtual Health System 101
Profile Engine 205
Scheduling Engine 210
Experience Engine 215
Analytics Engine 220
Billing Engine 225
Messaging Engine 230
Patient Profile 206
Provider Profile 211
Analytics 221
Virtual Health Service 116
Payment 226

FIG. 2

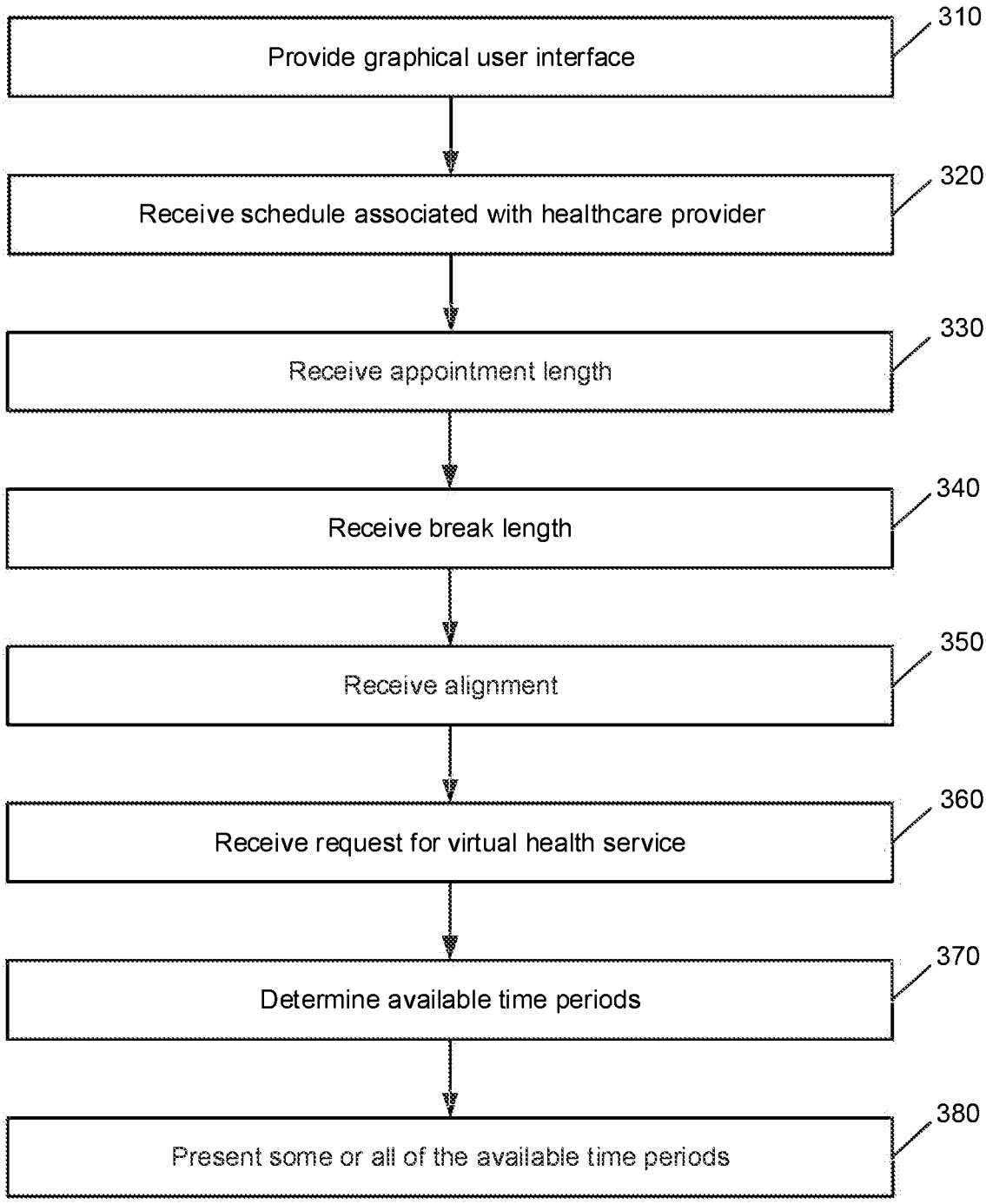
Provide graphical user interface
310
Receive schedule associated with healthcare provider
320
Receive appointment length
330
Receive break length
340
Receive alignment
350
Receive request for virtual health service
360
Determine available time periods
370
Present some or all of the available time periods
380
300

FIG. 3

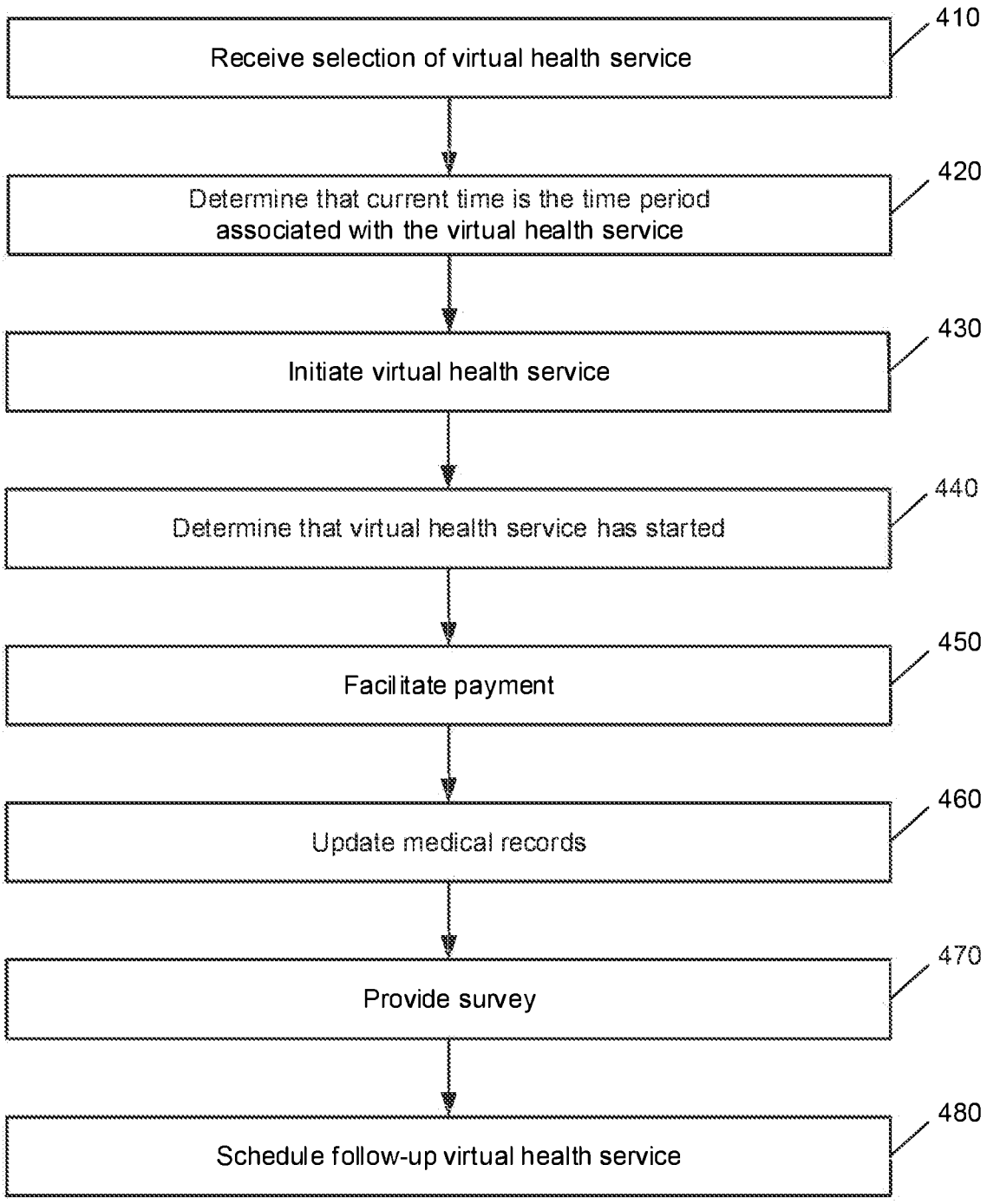
Receive selection of virtual health service
410
Determine that current time is the time period associated with the virtual health service
420
Initiate virtual health service
430
Determine that virtual health service has started
440
Facilitate payment
450
Update medical records
460
Provide survey
470
Schedule follow-up virtual health service
480
400

FIG. 4

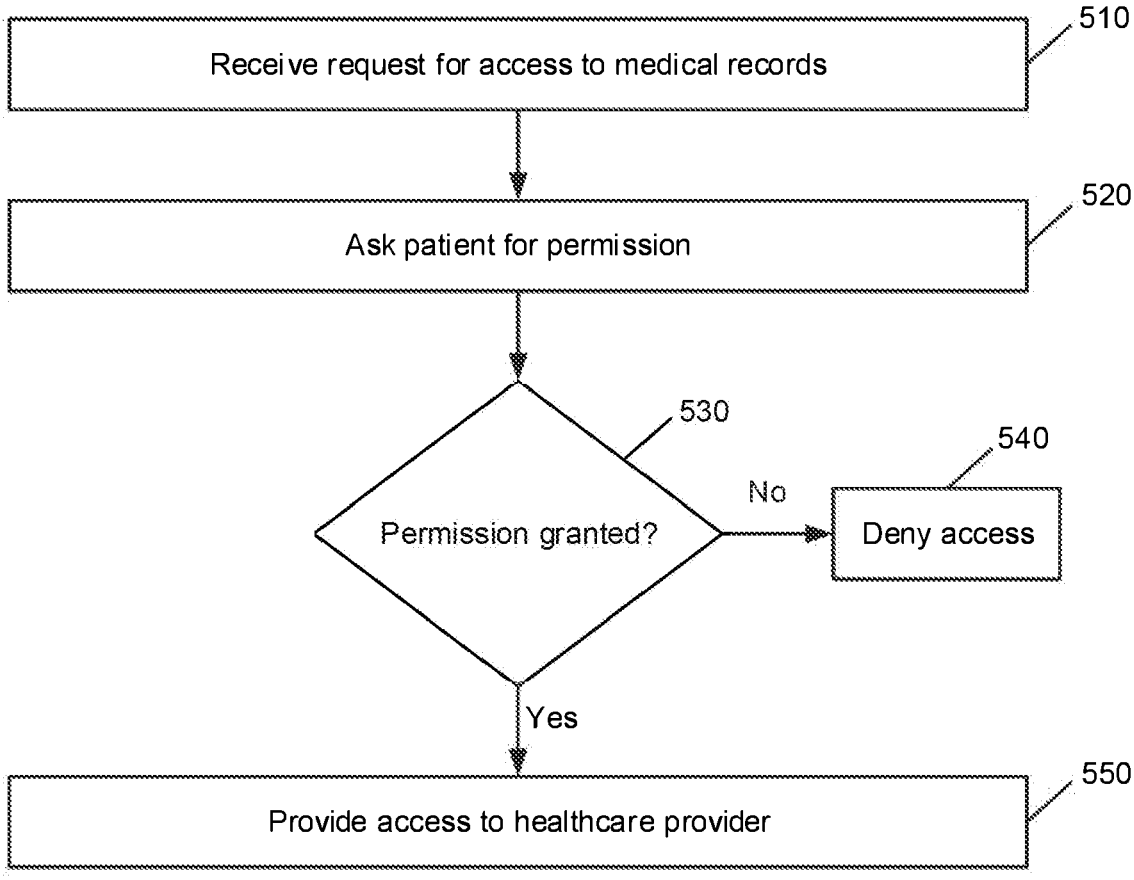
Receive request for access to medical records
510
Ask patient for permission
520
Permission granted?
530
No
Deny access
540
Yes
Provide access to healthcare provider
550
500

FIG. 5

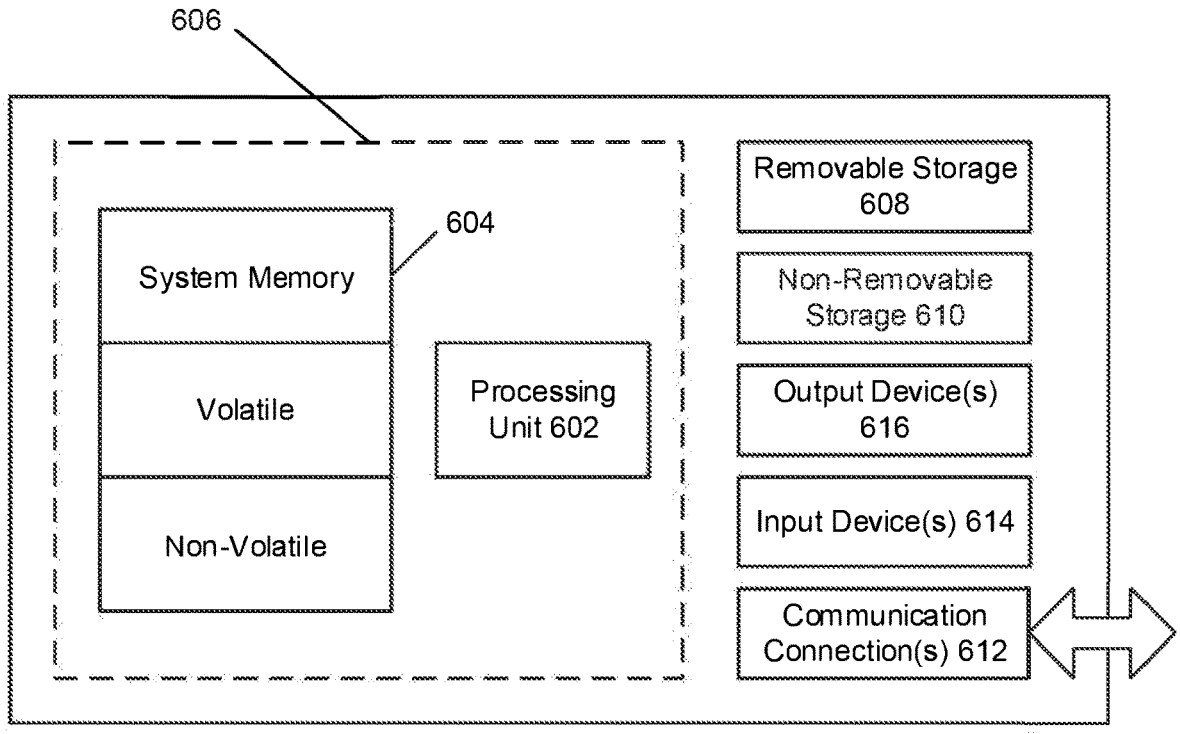
606
604
System Memory
Volatile
Non-Volatile
Processing Unit 602
Removable Storage 608
Non-Removable Storage 610
Output Device(s) 616
Input Device(s) 614
Communication Connection(s) 612
600

FIG. 6

SYSTEMS AND METHODS FOR PROVIDING VIRTUAL HEALTH SERVICES

CROSS-REFERENCE TO RELATED APPLICATIONS

The present application claims priority to U.S. Provisional Patent Application Ser. No. 63/125,559, filed on Dec. 15, 2020 and entitled "CLINICAL SCHEDULER SYSTEMS AND METHODS." The present application claims priority to U.S. Provisional Patent Application Ser. No. 63/135,152, filed on Jan. 8, 2021 and entitled "SYSTEMS AND METHODS FOR ORGANIZING GROUP MEETINGS ONLINE." The present application claims priority to U.S. Provisional Patent Application Ser. No. 63/153,030, filed on Feb. 24, 2021 and entitled "SYSTEMS AND METHODS FOR MANAGING COMMUNICATION OF HEALTHCARE INFORMATION BETWEEN HEALTHCARE PROVIDERS AND PATIENTS." The present application claims priority to U.S. Provisional Patent Application Ser. No. 63/153,526, filed on Feb. 25, 2021 and entitled "VIRTUALIZATION OF THE CLINICAL EXPERIENCE THROUGH A SEAMLESS AND INTEGRATED ONLINE HEALTHCARE PLATFORM." The present application claims priority to U.S. patent application Ser. No. 17/838,802, filed on Jun. 13, 2022 and entitled "SYSTEMS AND METHODS FOR PROVIDING VIRTUAL HEALTH SERVICES" which is a continuation application of, and claims priority to, U.S. patent application Ser. No. 17/207,024, filed on Mar. 19, 2021 and entitled "SYSTEMS AND METHODS FOR PROVIDING VIRTUAL HEALTH SERVICES." All of these disclosures are hereby incorporated by reference in their entireties.

BACKGROUND

There are currently many problems with how mental health services are provided. First, mental health services can be expensive which may discourage patients from seeking out mental health professionals for help. Second, the availability of mental health professionals may be limited to typical business hours which may make scheduling an appointment difficult for individuals with busy or non-standard schedules. Third, in the age of COVID, some potential patients may be unwilling or reluctant to travel or meet in-person with a mental health professional.

It is with respect to these and other considerations that the various aspects and embodiments of the present disclosure are presented.

SUMMARY

Systems and methods are provided for improving upon the clinical professional-patient scheduling method, providing a waiting list feature in the spirit of virtualizing a brick-and-mortar clinical experience to minimize wasted professional hours when a patient cancels an appointment, and generating efficient timeslots on-demand.

In an embodiment, a clinical scheduler method is provided. The method includes receiving at least one input from a user, wherein the at least one input comprises at least one of a length of schedule, a free time between appointments, or an alignment of appointments; and generating a schedule with timeslots based on the received at least one input.

Embodiments may include some or all of the following features. The at least one input is in a unit of time. The unit of time is at least one of minutes or hours. The user is a medical professional. The user is a mental health professional. The timeslots have a length based on an appointment type associated with the appointments. The timeslots have the free time during an interval and before one of the appointments starts. The timeslots start at multiples of times based on the alignment of appointments. The method further comprises producing time intervals available for booking using a schedule of the user and blocked intervals. The method further comprises, for each of the intervals available for booking: (a) creating a timeslot with a specified alignment and shrinking the interval to start when the timeslot with the specified alignment ends including the free time between appointments and (b) repeating (a) until there is no time remaining in the interval for another timeslot.

In an embodiment, a system is provided. The system includes at least one processor; and a non-transitory computer readable medium comprising instructions that, when executed by the at least one processor, cause the system to: receive at least one input from a user, wherein the at least one input comprises at least one of a length of schedule, a free time between appointments, or an alignment of appointments; and generate a schedule with timeslots based on the received at least one input.

Embodiments may include some or all of the following features. The at least one input is in a unit of time. The unit of time is at least one of minutes or hours. The user is a medical professional or a mental health professional. The timeslots have at least one of: a length based on an appointment type associated with the appointments; or the free time during an interval and before one of the appointments starts. The timeslots start at multiples of times based on the alignment of appointments. The non-transitory computer readable medium comprises further instructions that, when executed by the at least one processor, cause the system to produce time intervals available for booking using a schedule of the user and blocked intervals, and for each of the intervals available for booking: (a) create a timeslot with a specified alignment and shrink the interval to start when the timeslot with the specified alignment ends including the free time between appointments and (b) repeat (a) until there is no time remaining in the interval for another timeslot.

In an embodiment, a method is provided. The method includes receiving a selection of a professional; receiving a selection of an appointment type; generating available timeslots based on the selection of the professional and the selection of the appointment type; receiving a selection of one of the available timeslots; and scheduling an appointment based on the selection of the one of the available timeslots.

Embodiments may include some or all of the following features. The selections are received from a patient of the professional. Generating the available timeslots further comprises generating a waitlist for at least one unavailable timeslot.

This summary is provided to introduce a selection of concepts in a simplified form that are further described below in the detailed description. This summary is not intended to identify key features or essential features of the claimed subject matter, nor is it intended to be used to limit the scope of the claimed subject matter.

BRIEF DESCRIPTION OF THE DRAWINGS

The foregoing summary, as well as the following detailed description of illustrative embodiments, is better understood when read in conjunction with the appended drawings. For the purpose of illustrating the embodiments, there is shown

in the drawings example constructions of the embodiments; however, the embodiments are not limited to the specific methods and instrumentalities disclosed. In the drawings:

FIG. **1** is an example environment for providing virtual health services to a patient by a provider;

FIG. **2** is an illustration of an example virtual health system;

FIG. **3** is an operational flow of an implementation of a method for scheduling a virtual health service;

FIG. **4** is an operational flow of an implementation of a method for conducting a virtual health service;

FIG. **5** is an operational flow of an implementation of a method for providing access to medical records in a virtual health system; and

FIG. **6** shows an exemplary computing environment in which example embodiments and aspects may be implemented.

DETAILED DESCRIPTION

This description provides examples not intended to limit the scope of the appended claims. The figures generally indicate the features of the examples, where it is understood and appreciated that like reference numerals are used to refer to like elements. Reference in the specification to "one embodiment" or "an embodiment" or "an example embodiment" means that a particular feature, structure, or characteristic described is included in at least one embodiment described herein and does not imply that the feature, structure, or characteristic is present in all embodiments described herein.

FIG. **1** is an example environment **100** for providing virtual health services **116** to a patient **105** by a provider **110**. As shown, the environment **100** includes a provider **110**, a patient **105**, and a virtual health system **101** communicating through a network **190**. While only one provider **110** and one patient **105** are shown, it is contemplated that there may be multiple providers **110** and/or patients **105** in the environment **100**.

The provider **110** as used herein may include any provider of healthcare and medical services including mental health services. The provider **110** may include solo practitioners as well as group practices that include multiple practitioners. Providers **110** may include wellness providers, therapists, psychologists, psychiatrists, or some combination of all. Patients **105** may be any individual that receives medical or healthcare services from a provider **110**.

As described above, due to many factors such as cost, time, and COVID-19, many individuals do not receive necessary health services and particularly mental health services. Accordingly, to reduce the costs and increase the availability and convenience of health services, the environment **100** may further include a virtual health system **101**. The virtual health system **101** may allow patients **105** to connect with providers **110** and may facilitate the delivery of virtual health services **116** from the providers **110** to the patients **105**.

As used herein, a virtual health service **116** is a health service that is provided by a provider **110** to a patient **105** remotely through a communication medium such as the internet (e.g., the network **190**). Example communication mediums include video calling or video conferencing, text or chat applications (e.g., text messaging or SMS), and voice communication (e.g., cell phone, VOIP, and traditional telephony).

As described further with respect to FIG. **2**, the virtual health system **101** provides functionality to facilitate the scheduling and delivery of virtual health services **116**. In particular, the virtual health system **101** allows providers **110** to create profiles, set their desired compensation, and provide their available schedules for delivering virtual health services **116**. The virtual health system **101** allows patients **105** to search for providers **110** who meet their health criteria and set appointments with available providers **110**. The virtual health system **101** connects the patients **105** with the providers **110** using a selected or preferred communications means (e.g., video conference or telephone) to provide the selected virtual health services **116**. Before or after the virtual health services **116** are completed, the virtual health system **101** facilitates automatic payment for the services **226** via payment methods selected by the patients **105** (e.g., credit card or bank transfer).

Additional functionality provided by the virtual health system **101** includes advanced scheduling based on provider **110** availability. Providers **110** can provide their availability and specify requirements such as the desired length of services **116**, how much break time they need between services **116**, and whether they want services **116** to align or begin at a particular time. This provides additional flexibility to both the patient **105** and provider **110** when scheduling virtual health services and ensures that the providers **110** maximize their ability to provide virtual health services **116**.

Another functionality provided by the virtual health system **101** is the handling and transfer of patient **105** health or medical records. The virtual health system **101** may, for each patient **105**, maintain records of the virtual health services **116** provided by the providers **110** to the patient **105**. The records may include any feedback, notes, diagnoses, and prescriptions provided to the associated patient **105** by the providers **110**. In the event that a patient **105** would like to begin seeing a new provider **110**, or has been referred to a new provider **110**, the virtual health system **101** may facilitate providing the new provider **110** access to the records only after permission has been received from the patient **105** by the virtual health system **101**. This may allow patients **105** to easily move between providers **110** associated with the virtual health system **101** while protecting privacy and providing HIPAA compliance.

Another functionality provided by the virtual health system **101** is the use of analytics to improve patient care. For example, the virtual health system **101** may collect and process data related to the virtual health services **116** such as service length, patient **105** and provider **110** reviews or satisfaction surveys, patient **105** assignments, appointment frequency, and patient **105** reported mental health on surveys provided by the virtual health system **101**. The virtual health system **101** can use the processed data to identify virtual health service **116** features that are associated with improved patient **105** health or well-being such as appointment length, frequency, and provider **110** assignments. These features may then be recommended to the providers **110**.

FIG. **2** is an illustration of an example virtual health system **101**. As shown, the virtual health system **101** includes a variety of components including a profile engine **205**, a scheduling engine **210**, an experience engine **215**, an analytics engine **220**, a billing engine **225**, and a messaging engine **230**. More or fewer components may be supported. Some or all of the components of the virtual health system **101** may be implemented together or separately by a general purpose computing device such as the computing device **600** illustrated with respect to FIG. **6**. In addition, some or all of the components may be implemented together or separately by a cloud-based computing environment.

The profile engine **205** may create, store, and manage patient profiles **206** and provider profiles **211** for one or more patients **105** and providers **110**, respectively. For each patient **105**, the profile engine **205** may create a patent profile **206**. The patient profile **206** for a patient **105** may include information about the patient **105** such as their name, address, phone number, e-mail address, and demographics information. The patient profile **206** may include a screen name or alias that the patient **105** may like to use with respect to the virtual health system **101**.

The patient profile **206** may also include medical records associated with the patient **105**. Initially, the medical records may be provided by the patient **105**. Over time, the medical records may be updated to include information about virtual health services **116** provided by the providers **110** to the patient **105**, notes from the providers **110** about the patient **105**, medications prescribed to the patient **105** by the providers **110**, and any diagnoses provided by the providers **110**. As may be appreciated, the medical records portion of the patient profile **206** may be kept private and may only be viewed by a provider **110** authorized by the patient **105**.

When the patient **105** initially connects to the virtual health system **101**, the profile engine **205** may collect the information for the patient profile **206**, may help the patient **105** select an alias or username, and may help the patient **105** create a password. In addition, the profile engine **205** may assign a unique number or identifier to the patient **105**. The profile engine **205** may then store the patient profile **206**.

For each provider **110**, the profile engine **205** may create a provider profile **211**. The provider profile **211** for a provider **110** may include information about the provider **110** such as their name, address, phone number, e-mail address, and demographics information. The provider profile **211** may include a screen name or alias that the provider **110** may like to use with respect to the virtual health system **101**.

In addition, the provider profile **211** may include information about the provider **110** such as their title, specialty, the colleges and universities that they attended, and a description of their healthcare practice and healthcare interests. The provider profile **211** may further include indications of awards that the provider **110** received and papers that were authored by the provider **110**. The provider profile **211** may further include one or more images or photographs of the provider **211**. The profile engine **205** may create a provider profile **211** for each provider **110** similarly as described above for the patient profile **206**.

As may be appreciated, some or all of the information from the provider profile **211** may be visible to patients **105**. In particular, the patients **105** may be able to search for providers **110** based on information from the provider profiles **211** such as medical or health specialties and/or specific health issues treated by the providers **110**.

The scheduling engine **210** may create a schedule **213** for each provider **110** associated with the virtual health system **101**. The schedule **213** for a provider **110** may indicate the times during which the provider **211** is available to provide virtual health services **116** to patients **105** and may indicate the times that the provider **211** has already been scheduled to provide virtual health services **116**.

In some embodiments, the scheduling engine **210** may initially create the schedule **215** for a provider **110** based on information requested from the provider **110**. The information may include the times and dates that the provider **110** is available to provide virtual health services **116**, a minimum or maximum length of time for a virtual health service **116** (e.g., what is the shortest and longest health service that you will provide?), a minimum amount of time between virtual health services (e.g., how much break do you need between services?), service alignment (e.g., does the provider **110** prefer to begin services on the hour, half-hour, or has no preference), a maximum amount of time that the provider **110** would like to work for the virtual health system **101** during a week (e.g., twenty hours vs. forty hours), a desired cost for services **116**, a minimum acceptable cancelation time (e.g., one day before, one hour before, fifteen minutes before), and a cancelation charge (e.g., flat fee or percentage of service cost).

With respect to available dates and times, in some embodiments, the scheduling engine **210** may interface with one or more calendar applications (e.g., Microsoft Outlook™) and may determine the available times based on the calendar applications. If at a later time a provider **110** adds an event to their calendar, the scheduling engine **210** may readjust the schedule **213** of the provider **110** to reflect that the time associated with the event is no longer available.

The scheduling engine **210** may further facilitate the scheduling of one or more virtual health services **116** for patients **105** based on the schedule **213** associated with each provider **110**. In some embodiments, the patients **105** may select a desired provider **110** to have a virtual health service **116** and may provide a desired date range for the service **116**. In response to the selection, the scheduling engine **210** may retrieve the schedule **213** associated with the selected provider **110** and may generate a list of dates and times that the provider **110** is available for virtual health services **116**.

In some embodiments, the scheduling engine **210** may generate the list of available dates and times, by first determining the dates and times that the provider **110** is available for services **116** that fall within the dates and times provided by the patient **105** (i.e., which times has the provider **110** not yet been scheduled). The scheduling engine **210** may then determine, from among the dates and times, all dates and times that meet the various requirements of the providers **110**. The requirements including service length, time between events, alignment, etc. The list of determined dates and times that meet the provider **110** availability requirements may be displayed to the patient **105**, and the patient **105** can select from among the displayed times. If the patient **105** selects a time for a virtual health service **116**, the virtual health service **116** may be added to the schedule **213** of the provider **110** and a schedule **213** for the patient **105**.

In some embodiments, the scheduling engine **210** may allow patients **105** to be put on waiting lists for unavailable times for a provider **110**. The scheduling engine **210** may, along with the available times, display the times when the provider **110** is unavailable. If the patient **105** selects an unavailable time, the scheduling engine **210** may offer to add the patient **105** to a waitlist for the provider **110** at the selected time. In the event that the scheduled patient **105** cancels, the scheduling engine **210** may offer the time to patients **105** from the waitlist.

In some embodiments, when a patient **105** first requests or schedules an appointment with a provider **110**, the scheduling engine **210** may provide the patient **105** an intake form associated with the provider **110**. The intake form may include various questions for the patient **105** such as demographic questions, and questions about the mental health of the patient **105**. Once the patient **105** completes the intake form, the scheduling engine **210** may store or associate the form with the patient profile **206**.

In addition, before the patient **105** schedules a virtual health service **116** with a provider **110**, the scheduling engine **215** may allow the patient **105** to send some number

of communications (e.g., e-mails) to the provider **110**. For example, the patient **105** may have questions about the provider **110** such as their philosophy or experience with a particular mental health issue. However, to prevent the patient **105** from overwhelming the provider **110**, the patient **105** may be limited to a maximum number of communications, such as three messages. More or fewer messages may be supported. When the provider **110** responds to a communication from a patient **105**, the patient **105** may be credited with some number of additional communications with the provider **110**.

In some embodiments, the scheduling engine **210** may also facilitate the creation of group virtual health services **116**. A group virtual health service may be a health service **116** that has at least one provider **110** and two or more patients **105**. A group health service **116** may further include multiple providers **110**.

When a provider **110** initially creates a group virtual health service **116**, the provider **110** may identify a primary provider **110** that will control or be responsible for running the group virtual health service **116** along with other providers **110** that will participate. The provider **110** may also identify a length of time for the virtual health service **116**, the number of patients **105** that may participate, a cost for the group virtual health service **116**, and may provide a description for the group virtual health service **116**. Patients **105** may be able to search for available group virtual health services **116** similarly as described above for non-group virtual health services **116**.

The experience engine **215** may facilitate the delivery of virtual health services **116** to patients **105** and providers **110**. The experience engine **215** may receive the schedules **213** for each provider **110** and patient **105**. At a configurable amount of time (e.g., fifteen minutes, ten minutes, five minutes, etc.) before a virtual health service **116** is scheduled to begin, the experience engine **215** may send an electronic message (e.g., email or text message) to the patient **105** and the provider **110**. The message may include a link through which the patient **105** can access the virtual health service **116** (e.g., video chat). The message may further include a link or user interface element that the patient **105** and/or provider **110** can use to cancel or reschedule the virtual health service **116** if necessary.

In embodiments with a waitlist, the experience engine **215** may send an additional message to waitlist patients **105** at some time (e.g., fifteen minutes, thirty minutes, forty-five minutes, etc.) prior to the start of the virtual health service **116**. The message may ask each patient **105** to confirm that they would like to attend the virtual health service **116**. In the event that the scheduled patient **105** cancels or declines the virtual health service **116**, a next patient **105** on the waitlist may be offered the service **116** as described above.

In some embodiments, the experience engine **215** may control and facilitate the technology that is used to provide the virtual health services **116** (e.g., video chats or telephone call). Alternatively, the experience engine **215** may use existing technologies or services provided by third-parties (e.g., FaceTime™, Zoom™, and Microsoft Teams™).

The experience engine **215** may allow the provider **110** to record notes and observations made during the virtual health service **116**, as well as a transcript or recording of the virtual health service **116**. The experience engine **215** may store notes and observations in the patient profile **206** as part of the medical records. The notes may include any diagnoses made by the provider **110** during the virtual health service **116**. Depending on the embodiment, the patient **105** may first consent to the recording of the virtual health service **116** before the provider **110** is able to make any recordings.

The experience engine **215** may allow the provider **110** to assign assignments or "homework" to the patient **105**. The assignments may include reading assignments, journaling assignments, questionnaires, and activities, for example. The experience engine **215** may provide an interface to create the assignments, may track which assignments were completed, may track how long each assignment or assignment section took to complete, and may send reminders to the patient **105** about pending assignments. Information about each assignment may be stored in the patient profile **206** as part of the medical records.

Depending on the embodiment, when the experience engine **215** determines that a patient **105** has completed an assignment, the experience engine **215** may automatically send the patient **105** an encouraging message or other communication. The message or communication may include text or other correspondence that was selected or approved by the associated provider **110**, and the message or communication may appear to the patient **105** as if the message or communication had been sent by the provider **110** themselves. So that the automated nature of the message or communication is not obvious to the patient **105**, the experience engine **215** may delay the delivery of the message by some configurable amount of time (e.g., 15 minutes, 30 minutes, etc.) after the patient **105** completes the assignment.

The experience engine **215** may allow the provider **110** to create and provide prescriptions for medication to the patient **105** during, or after, a virtual health service **116**. The prescription may be an electronic prescription that is electronically provided to the patient **105**. Depending on the embodiment, the prescription may include a link to an entity that may be used to fulfil the prescription (e.g., a mail-order pharmacy). When a prescription is filled through the virtual health system **101**, the virtual health system **101** and/or the provider **110** may receive a fee or a percentage of the cost of the prescription.

The experience engine **215** may further allow the provider **110** to view the medical records associated with the patient **105**. The provider **110** may view the notes and observation from previous virtual health services **116**, information about any medications prescribed to the patient **105**, and any prior diagnoses made for the patient **105**. In addition, the provider **110** may view the assignments completed (or not completed) by the patient **105**.

Depending on the embodiment, the experience engine **215** may provide social networking functionality through which patients **105** and providers **110** can "friend" each other and exchange information such as images, articles, and ideas related to healthcare and virtual health services **116**. The patients **105** and providers **110** may be segregated from one another so that patients **105** can only communicate with other patients **105**, and vice versa.

The experience engine **215** may periodically request that patients **105** submit reviews or evaluations of providers **110**. The evaluations may ask the patients **105** to review the provider **110** on a variety of metrics and to provide an overall score for the provider **110**. The patients **105** may also be asked to periodically indicate how they are feeling and whether they believe that the virtual health services **116** provided by a provider **110** have been effective.

In some embodiments, the virtual health system **101** may provide virtual health services **116** to patients **105** that are employees of a company or other entity. The experience engine **215** may periodically survey the employee patients

105 regarding their overall happiness and/or mental health and/or other characteristics, behaviors, feelings, etc. The results of the surveys may be aggregated, anonymized, and provided to the associated companies. The anonymized results may be further provided to providers 110, or other entities such as investors, for example.

The experience engine 215 may further provide awards, trophies, or other encouragements to both the patients 105 and providers 110 for participating in virtual health services 116. For example, patients 105 may be provided with "trophies" for attending their first virtual health service 116, meeting certain milestones (e.g., attend five, ten, or one hundred services 116), or completing their assignments for some number of consecutive weeks. These "trophies" can be added to the patient profiles 206 and displayed in messages sent by the patients 105.

Providers 110 may similarly be provided with "trophies" for having provided some number of virtual health services 116, for receiving a high score or rating from patients 105, or for performing some number of services 116 in one day or one week. These "trophies" and average scores or ratings can be displayed in the provider profile 211 and may be considered by patients 105 when selecting providers 110.

In some embodiments, the experience engine 215 may further provide patients 105 with credits for participating in virtual health services 116 or for completing assignments. These credits may be redeemed by the patients 105 for free or discounted virtual health services 116, for merchandise, or for goods or services provided by affiliated companies or entities.

The experience engine 215 may protect the privacy of the medical records associated with each patient 105. When a patient 105 first schedules a virtual health service 116 with a provider 110, the experience engine 215 may provide an electronic message that asks the patient 105 to consent to having the particular provider 110 view the patient's 105 medical records. Only after the patient 105 consents is the particular provider 110 allowed access to the medical records.

The experience engine 215 may further allow patients 105 to consent to other providers 110 viewing their medical records. For example, a first provider 110 may be currently seeing a patient 105 virtually but would like to refer the patient 105 to a second provider 110 associated with the virtual health system 101. The first provider 110 may make the referral by searching for the second provider 110 and providing a message to the second provider 110. If the second provider 110 accepts the referral, the patient 105 may be automatically provided an electronic message asking the patient 105 to consent to the second provider 110 viewing their health and medical records. Note that the patient 105 may withdraw consent from any provider 110 at any time through the experience engine 215.

After a virtual health service 116 ends, the provider 110 and patient 105 may agree to one or more follow-up services 116 or may agree to make the service 116 a recurring service 116. The experience engine 215 may facilitate the creation of the follow-up services 116 through the scheduling engine 210.

The analytics engine 220 may collect and process data about the virtual health services 116 and may generate one or more analytics 221 that may be used to improve outcomes related to the virtual health services 116. In particular, the analytics engine 220 may track interactions of the patients 105 and providers 110 made through the virtual health system 101 and may provide feedback related to the tracked interactions in the form of analytics 221.

One example of analytics 221 that may be provided by the analytics engine 220 is feedback related to the assignments provided by the providers 110 to their patients 105 through the virtual health system 101. As noted above, information about the assignments such as whether they were completed, how long they took to complete, and how long each question took to complete may be tracked by the experience engine 215. The analytics engine 220 may process the tracked data to provide feedback in the form of analytics 221 to the providers 110.

For example, with respect to an assignment, the analytics 221 may show the average amount of time patients 105 spent responding to each question, and the overall completion rate for the assignment by patients 105. The provider 110 may then determine which questions are not being answered by patients 105 or that are taking up too much time.

The analytics engine 220 may present the analytics 221 for the assignment along with analytics 221 collected for assignments created by other providers 110. The provider 110 can then see how their assignments compare with the assignments of other providers 110 in terms of completion rates.

As another example, the analytics engine 220 may collect data related to the intake forms completed by patients 105 after making an appointment with a provider 110. As described above, when a patient 105 books a first appointment with a provider 110, the virtual health system 101 may automatically provide the patient 105 with an intake form that is created and/or provided by the provider 110. Similar to the assignments, data about the intake forms may be collected for each provider 110 including time spent on each question in the form, the completion rate for each question, and the overall completion rate or abandonment rate (i.e., how many patients 105 actually submit or do not submit the completed intake form).

The analytics engine 220 may use the data about the intake forms to provide analytics 221 about the intake forms to each provider 110. The analytics 221 provided to a provider 110 may include the average amount of time that the patients 105 spent completing the form along with the average amount of time spent on intake forms associated with the other providers 110. The provider 110 may then determine to adjust their intake forms based on the analytics 221.

The billing engine 225 may facilitate providing payments 226 to providers 110 for virtual health services 116. Once a virtual health service 116 begins, the billing engine 225 may put a hold on the credit card associated with the patient 105 (or patients 105) associated with the service 116. The billing engine 225 may determine the credit card from the patient profile 206 associated with the patient 105 and may determine a cost for the service 116 based on information associated with the provider profile 211 or otherwise provided by the provider 110. Note that depending on the embodiment, some providers 110 may offer one or more free virtual health services 116.

After the virtual service 116 has begun, the billing engine 225 may charge the credit card of the patient 105 for the cost of the service 116. The billing engine 225 may then deposit an amount of money into an account associated with the provider 110 minus a fee charged by the virtual health system 101 to the providers 110. The fee may be a flat fee or may be a percentage of the cost of the virtual health services 116. Depending on the embodiment, the fee may be constant, or may decrease based on the total number of virtual health services 116 provided by the provider 110 in a given period (e.g., week, month, quarter, or year). For

example, the provider **110** may pay a 20% fee for the first fifty services **116** conducted in a year, and a 15% fee for all services **116** provided thereafter. The fee may remain at a reduced rate so long as the provider **110** continues to provide virtual health services **116** at a specified frequency. Depending on the embodiment, the billing engine **225** may determine that a virtual health service **116** has begun when both the patient **105** and the provider **110** have connected to or initiated the virtual health service **116**.

The billing engine **225** may further reduce or adjust the fee to encourage providers **110** to provide services at certain dates or times. For example, the billing engine **225** may lower the fee for virtual health services **116** that occur between 9 pm and 6 am or may lower the fee for virtual health services **116** that occur on certain holidays.

The billing engine **225** may further provide payments **226** to providers **110** when a patient **105** cancels outside of a cancelation window. The window may be a default window or may be specified by the provider **110** in their provider profile **211**. The amount of the cancellation fee may further be a default fee or may be specified by the provider **110**.

The billing engine **225** may allow for payment to providers **110** via one or more insurance companies or third-party payors (e.g., government payors). The billing engine **225** may use insurance information associated with each patient **105** to determine the insurance company to charge and a co-pay that may be required from the patient **105**. Depending on the embodiment, if the insurance company will not pay the full amount charged by the provider **110**, the billing engine **225** may collect any remaining payment **226** due from the patient **105** as described above.

The messaging engine **230** may facilitate communication channels (e.g., chat or messaging applications) that may be used by patients **105** and providers **110** to communicate with each other through the virtual health system **101**. The messaging engine **230** may allow patients **105** to initiate communication by searching for and selecting among a customized list of providers **110** based on a number of criteria (geographic location, specialty, insurance affiliation, etc.). In some embodiments, before the messaging engine **230** allows the patient **105** and the provider **110** to communicate, the provider **110** may first agree or consent to continue the communication.

The messaging engine **230** may allow for the sending, transferring, and saving of a variety of documents between patients **105** and providers **110**, or providers **110** and other providers **110**. These documents may include a variety of documents that may be used to provide medical or health services to patients **105** including, but not limited to, healthcare referrals, patient medical records and notes, insurance documentation, radiologic images or reports, and procedure records. Other documents may be supported.

In some embodiments, the messaging engine **230** may allow providers **110** to share information about patients **105** while maintaining strict HIPAA compliance. For example, a first provider **110** may be discussing a patient **105** with a second provider **110** in a chat application. The first provider **110** may be currently treating the patient **105** and would like to share medical records associated with the patient **105** with the second provider **110**. Accordingly, the first provider **110** may drag and drop or attach the records into the chat application.

In response, the messaging engine **230** may first determine whether the patient **105** has consented for the second provider **110** to view their medical records, and if not, the messaging engine **230** may send a message or communication to the patient **105** asking for consent to the sharing of their medical records with the second provider **110**. If the patient **105** consents, then the messaging engine **230** may allow the second provider **110** to view the patient records in the chat application.

In some embodiments, the messaging engine **230** may initially restrict or provide for minimal communication between providers **110** and patients **105** to both protect the privacy of the patients **105** and providers **110** as well as prevent the solicitation of patients **105** by providers **110**. For example, when a first provider **110** attempts to communicate or start a chat session with a second provider **110**, the messaging engine **230** may first ask the second provider **110** to consent to the communication.

With respect to communications between providers **110** and patients **105**, when a provider **110** with no current or previous clinical relationship with a patient **105** attempts to communicate with the patient **105**, the messaging engine **230** may prevent the provider **110** from sending the communication. This may prevent providers **110** from spamming patients **105** with unsolicited requests to attend virtual health services **116**.

The messaging engine **230** may further allow chats, and other communications that relate to a patient **105** to be stored or linked to the medical history or records associated with the patient **105**. When a provider **110** is discussing a patient **105** with either the patient **105** themselves or another authorized provider **110**, the messaging engine **230** may allow the provider **110** to associate some or all of the communication with the medical records of the patient **105**. For example, the messaging engine **230** may allow the provider **110** to highlight portions of a chat and to associate the highlighted portions with the medical records of the patient **105**. Depending on the embodiment, the portions of the chat that are about the patient **105** may be automatically identified and highlighted by the messaging engine **230** using natural language processing, or may be manually highlighted by the provider **110**.

In some embodiments, the messaging engine **230**, rather than save the chat or portions of the chat with the medical records of a patient **105**, may allow providers **110** to create bookmarks or links to the portions of the chat that are related to the patient **105**. The bookmarks or links may then be stored with the medical records of the patient **105** or shared with other providers **110**. The bookmarks may then be later used to retrieve the associated chat or chat portions when selected.

Where providers **110** are discussing multiple patients **105** in a single chat, the messaging engine **230** may create multiple bookmarks that each reference a portion of the chat that corresponds to a different patient **105**. The bookmarks may be stored along with the medical records of their associated patient **105**. At a later time when a bookmark is used to retrieve the chat, the messaging engine **230** may only allow the portions of the chat that are associated with the patient **105** corresponding to the bookmark to be viewed.

In some embodiments, the messaging engine **230** may allow providers **110** to transfer patient **105** specific conversation from a general conversation with other providers **110** to a patient **105** specific conversation that may be linked to the medical records associated with a patient **105**. For example, a first provider **110** may be having a chat discussion with a second provider **110** about a variety of topics. At some point in the conversation, a particular patient **105** may be discussed by the first and second providers **110**. After they are finished discussing the patient **105**, the first (or second) provider **110** may select or highlight the parts of the chat that are about the particular patient **105** and may

indicate to the messaging engine **230** that these parts of the chat should be associated with the patient **105**. The messaging engine **230** may then generate a new chat that includes just the highlighted messages and may associate or bookmark the new chat with the medical records of the patient **105** as described above.

FIG. **3** is an illustration of a method **300** for scheduling a virtual health service **116**. The method **300** may be implemented by the virtual health system **101**.

At **310**, a graphical user interface is provided. The graphical user interface may be provided by the virtual health system **101** to one or more patients **105** and providers **110**. Depending on the embodiment, the graphical user interface may be provided by a webpage provided by the virtual health system **101** or through an "app" or application provided by the virtual health system **101**. The patient **105** and providers **110** may download the app to their associated smartphones or computing devices. The patients **105** and providers **110** may use the graphical user interface to interact with the virtual health system **101** and to provide or receive virtual health services **116**.

At **320**, a schedule associated with a healthcare provider is received. The schedule **213** may be received by the scheduling engine **210** from the provider **110** through the graphical user interface. The schedule **213** may indicate the availability of the healthcare provider **110** to provide virtual healthcare services **116** to one or more patients **105** over a first duration of time (e.g., day, week, or month).

At **330**, an appointment length is received. The appointment length may be received by the scheduling engine **210** from the provider **110** through the graphical user interface. The appointment length may indicate the range of lengths that the provider **110** desires for virtual health services **116**. For example, some providers **110** may require that virtual health services **116** be at least fifty minutes in length, other providers **110** may allow shorter virtual health services **116**.

At **340**, a break length is received. The break length may be received by the scheduling engine **210** from the provider **110** through the graphical user interface. The break length may indicate the minimum amount of time that the provider **110** requires between virtual health services **116**.

At **350**, an alignment is received. The alignment may be received by the scheduling engine **210** from the provider **110** through the graphical user interface. The alignment may indicate whether the provider **110** requires that virtual health services **116** begin at any particular time. For example, some providers **110** may require that all services **116** begin on the hour, while other providers **110** may allow services **116** to begin on the hour or the half-hour.

At **360**, a request for a virtual healthcare service is received. The request may be received by the scheduling engine **210** from a patient **105** through the graphical user interface. The request may identify the provider **110** and may include a second duration of time. For example, the request may include a range of dates and times that the patient is available to attend a virtual health service **116** with the provider **110**.

At **370**, in response to the request, available time periods are determined. The available time periods may be determined by the scheduling engine **210**. The time periods may be within the first duration and the second duration and may meet all of the requirements and preferences provided by the provider **110** (i.e., the appointment length, break length, and alignment).

At **380**, some or all of the determined time periods are presented. The determined periods may be presented by the scheduling engine **210** to the patient **105** through the graphical user interface. The patient **105** may then select one of the time periods, and a virtual health service **116** may be scheduled with the provider **110**. Depending on the embodiment, a hold may be placed on a credit card or other payment means associated with the patient **105** for the cost of the virtual health service **116**.

FIG. **4** is an illustration of a method **400** for conducting a virtual health service **116**. The method **400** may be implemented by the virtual health system **101**.

At **410**, a selection of a virtual health service is received. The selection may be received by the scheduling engine **210**. The virtual health service **116** may be associated with a time period in the future. The virtual health service **116** may be a video chat or communication with a healthcare provider **110**.

At **420**, that a current time is a starting time of the virtual health service is determined. The determination may be made by the experience engine **215**. Depending on the embodiment, the experience engine **215** may determine that the current time is within some threshold of the start time (e.g., five minutes, ten minutes, etc.).

At **430**, in response to the determination, the virtual health service is initiated. The virtual health service **116** may be initiated by the experience engine **215**. For example, the experience engine **215** may send an electronic message to the patient **105** and the provider **110** associated with the virtual health service **116**. The message may include a link to start or otherwise cause the virtual health service **116** to begin.

At **440**, that the virtual health service has started is determined. The experience engine **215** may determine that the virtual health service **116** has started when both the provider **110** and the patient **105** have accessed or signed on to the virtual health service **116**.

At **450**, payment for the virtual health service is facilitated. The payment **226** may be facilitated by the billing engine **225**. In some embodiments, the billing engine **225** may facilitate payment by debiting a credit card associated with the patient **105** and crediting an account associated with the healthcare provider **110**. In addition, the billing engine **225** may reduce the payment **226** to the provider **110** by a fee that is paid to the virtual health system **101**. In some embodiments, the billing engine **225** may facilitate payment **226** through one or more insurance providers or third-party payors associated with the patient **105**.

At **460**, medical records associated with the patient are updated. The medical records may be updated by the experience engine **215**. The medical records may be updated to reflect that the virtual health service **116** was provided, to include any notes or observations made by the provider **110** during or after the service **116**, and any prescriptions that were provided to the patient **105**. Other information may be included in the medical records.

At **470**, a survey is provided. A survey may be provided by the experience engine **215** after the virtual health service **116** has ended. The survey may include questions for the patient **110** about the service **116** and the provider **110**. The survey may ask the patient **105** to rate the service **116** and provider **110** on a variety of metrics. The survey may also ask the patient **110** questions about their overall mental well-being. The answers to the survey may be used by the analytics engine **220** to identify virtual health service **116** best practices that lead to improved patient **105** well-being and virtual health service **116** satisfaction.

At **480**, a follow-up virtual health service is scheduled. The follow-up service may be scheduled automatically by the scheduling engine **210** after the virtual health service **116** has ended.

FIG. **5** is an illustration of a method **500** for providing access to medical records in a virtual health system **101**. The method **500** may be implemented by the virtual health system **101**.

At **510**, a request for access to medical records is received. The request may be received by the profile engine **205** from a provider **110**. For example, a provider **110** may have received a referral to treat a patient **105** associated with the medical records or may be collaborating with another provider **110** who treats the patient **110**. Depending on the embodiment, the provider **110** may provide the request using a graphical user interface and/or messaging system provided by the virtual health system **101**. The medical records may be part of the patient profile **206** associated with the patient **105** and may only be viewed or accessed by providers **110** with permission from the associated patient **105**.

At **520**, the patient is asked for permission. The patient **105** may be asked for permission by the profile engine **205**. Depending on the embodiment, the profile engine **205** may send an electronic message to the patient **105** that identifies the provider **110** requesting access to their medical records. The message may include a link or user interface element that the patient **105** may use to approve or deny the request and to request additional information about the provider **110**.

At **530**, it is determined whether the patient **105** has granted permission to view their medical records. If so, the method **500** may continue at **550**. Otherwise, the method **500** may continue at **540**.

At **540**, access to the medical records of the patient is denied. The access may be denied by the profile engine **205**.

At **550**, access to the medical records of the patient is provided. The access may be provided by the profile engine **205**. Depending on the embodiment, the profile engine **205** may provide an electronic message to the provider **110**. The message may include a link to the medical history associated with the patient.

FIG. **6** shows an exemplary computing environment in which example embodiments and aspects may be implemented. The computing device environment is only one example of a suitable computing environment and is not intended to suggest any limitation as to the scope of use or functionality.

Numerous other general purpose or special purpose computing devices environments or configurations may be used. Examples of well-known computing devices, environments, and/or configurations that may be suitable for use include, but are not limited to, personal computers, server computers, handheld or laptop devices, multiprocessor systems, microprocessor-based systems, network personal computers (PCs), minicomputers, mainframe computers, embedded systems, distributed computing environments that include any of the above systems or devices, and the like.

Computer-executable instructions, such as program modules, being executed by a computer may be used. Generally, program modules include routines, programs, objects, components, data structures, etc. that perform particular tasks or implement particular abstract data types. Distributed computing environments may be used where tasks are performed by remote processing devices that are linked through a communications network or other data transmission medium. In a distributed computing environment, program modules and other data may be located in both local and remote computer storage media including memory storage devices.

With reference to FIG. **6**, an exemplary system for implementing aspects described herein includes a computing device, such as computing device **600**. In its most basic configuration, computing device **600** typically includes at least one processing unit **602** and memory **604**. Depending on the exact configuration and type of computing device, memory **604** may be volatile (such as random access memory (RAM)), non-volatile (such as read-only memory (ROM), flash memory, etc.), or some combination of the two. This most basic configuration is illustrated in FIG. **6** by dashed line **606**.

Computing device **600** may have additional features/functionality. For example, computing device **600** may include additional storage (removable and/or non-removable) including, but not limited to, magnetic or optical disks or tape. Such additional storage is illustrated in FIG. **6** by removable storage **608** and non-removable storage **610**.

Computing device **600** typically includes a variety of computer readable media. Computer readable media can be any available media that can be accessed by the device **600** and includes both volatile and non-volatile media, removable and non-removable media.

Computer storage media include volatile and non-volatile, and removable and non-removable media implemented in any method or technology for storage of information such as computer readable instructions, data structures, program modules or other data. Memory **604**, removable storage **608**, and non-removable storage **610** are all examples of computer storage media. Computer storage media include, but are not limited to, RAM, ROM, electrically erasable program read-only memory (EEPROM), flash memory or other memory technology, CD-ROM, digital versatile disks (DVD) or other optical storage, magnetic cassettes, magnetic tape, magnetic disk storage or other magnetic storage devices, or any other medium which can be used to store the desired information and which can be accessed by computing device **600**. Any such computer storage media may be part of computing device **600**.

Computing device **600** may contain communication connection(s) **612** that allow the device to communicate with other devices. Computing device **600** may also have input device(s) **614** such as a keyboard, mouse, pen, voice input device, touch input device, etc. Output device(s) **616** such as a display, speakers, printer, etc. may also be included. All these devices are well known in the art and need not be discussed at length here.

It should be understood that the various techniques described herein may be implemented in connection with hardware components or software components or, where appropriate, with a combination of both. Illustrative types of hardware components that can be used include Field-programmable Gate Arrays (FPGAs), Application-specific Integrated Circuits (ASICs), Application-specific Standard Products (ASSPs), System-on-a-chip systems (SOCs), Complex Programmable Logic Devices (CPLDs), etc. The methods and apparatus of the presently disclosed subject matter, or certain aspects or portions thereof, may take the form of program code (i.e., instructions) embodied in tangible media, such as floppy diskettes, CD-ROMs, hard drives, or any other machine-readable storage medium where, when the program code is loaded into and executed by a machine, such as a computer, the machine becomes an apparatus for practicing the presently disclosed subject matter.

As used herein, the singular form "a," "an," and "the" include plural references unless the context clearly dictates otherwise. As used herein, the terms "can," "may," "optionally," "can optionally," and "may optionally" are used interchangeably and are meant to include cases in which the condition occurs as well as cases in which the condition does not occur.

Ranges can be expressed herein as from "about" one particular value, and/or to "about" another particular value. When such a range is expressed, another embodiment includes from the one particular value and/or to the other particular value. Similarly, when values are expressed as approximations, by use of the antecedent "about," it will be understood that the particular value forms another embodiment. It will be further understood that the endpoints of each of the ranges are significant both in relation to the other endpoint, and independently of the other endpoint. It is also understood that there are a number of values disclosed herein, and that each value is also herein disclosed as "about" that particular value in addition to the value itself. For example, if the value "10" is disclosed, then "about 10" is also disclosed.

Although exemplary implementations may refer to utilizing aspects of the presently disclosed subject matter in the context of one or more stand-alone computer systems, the subject matter is not so limited, but rather may be implemented in connection with any computing environment, such as a network or distributed computing environment. Still further, aspects of the presently disclosed subject matter may be implemented in or across a plurality of processing chips or devices, and storage may similarly be effected across a plurality of devices. Such devices might include personal computers, network servers, and handheld devices, for example.

Although the subject matter has been described in language specific to structural features and/or methodological acts, it is to be understood that the subject matter defined in the appended claims is not necessarily limited to the specific features or acts described above. Rather, the specific features and acts described above are disclosed as example forms of implementing the claims.

What is claimed is:

1. A clinical scheduler method comprising:

receiving at a computing device at least one input from a user, wherein the at least one input comprises a length of schedule, a free time between appointments, and an alignment of appointments;

generating by the computing device a schedule with timeslots based on the received at least one input;

receiving by the computing device a selection of one of the timeslots of the generated schedule from a patient;

scheduling by the computing device an appointment based on the selection of the one of the timeslots;

detecting that medical records of the patient are attached into a communication application;

in response to detecting that the medical records are attached into the communication application, automatically generating and sending an electronic message through the communication application to the patient requesting permission to allow the user access to medical records of the patient, wherein the electronic message includes a user interface element that the patient may use to approve or deny the request;

receiving permission from the patient to allow the user access to the medical records; and

in response to receiving the permission, providing the user access to the medical records by generating and providing a link to the medical records in the communication application.

2. The method of claim **1**, wherein the at least one input is in a unit of time.

3. The method of claim **2**, wherein the unit of time is at least one of minutes or hours.

4. The method of claim **1**, wherein the user is a medical professional.

5. The method of claim **1**, wherein the user is a mental health professional.

6. The method of claim **1**, wherein the timeslots have a length based on an appointment type associated with the appointments.

7. The method of claim **1**, wherein the timeslots have the free time during an interval and before one of the appointments starts.

8. The method of claim **1**, wherein the timeslots start at multiples of times based on the alignment of appointments.

9. The method of claim **1**, further comprising producing time intervals available for booking using a schedule of the user and blocked intervals.

10. The method of claim **9**, further comprising, for each of the intervals available for booking: (a) creating a timeslot with a specified alignment and shrinking the interval to start when the timeslot with the specified alignment ends including the free time between appointments and (b) repeating (a) until there is no time remaining in the interval for another timeslot.

11. A system comprising:

at least one processor; and

a non-transitory computer readable medium comprising instructions that, when executed by the at least one processor, cause the system to:

receive at least one input from a user, wherein the at least one input comprises a length of schedule, a free time between appointments, and an alignment of appointments;

generate a schedule with timeslots based on the received at least one input;

receive a selection of one of the timeslots of the generated schedule from a patient;

schedule an appointment based on the selection of the one of the timeslots;

detect that medical records of the patient are attached into a communication application;

in response to detecting that the medical records are attached into the communication application, automatically generate and send an electronic message through the communication application to the patient requesting permission to allow the user access to medical records of the patient, wherein the electronic message includes a user interface element that the patient may use to approve or deny the request;

receive permission from the patient to allow the user access to the medical records; and

in response to receiving the permission, providing the user access to the medical records by generating and providing a link to the medical records in the communication application.

12. The system of claim **11**, wherein the at least one input is in a unit of time.

13. The system of claim **12**, wherein the unit of time is at least one of minutes or hours.

14. The system of claim **11**, wherein the user is a medical professional or a mental health professional.

15. The system of claim 11, wherein the timeslots have at least one of: a length based on an appointment type associated with the appointments; or the free time during an interval and before one of the appointments starts.

16. The system of claim 11, wherein the timeslots start at multiples of times based on the alignment of appointments.

17. The system of claim 11, wherein the non-transitory computer readable medium comprises further instructions that, when executed by the at least one processor, cause the system to produce time intervals available for booking using a schedule of the user and blocked intervals, and for each of the intervals available for booking: (a) create a timeslot with a specified alignment and shrink the interval to start when the timeslot with the specified alignment ends including the free time between appointments and (b) repeat (a) until there is no time remaining in the interval for another timeslot.

18. A method comprising:

receiving at a computing device a selection of a professional;

receiving by the computing device a selection of an appointment type;

generating by the computing device available timeslots based on the selection of the professional and the selection of the appointment type;

receiving by the computing device a selection of one of the available timeslots from a patient;

scheduling by the computing device an appointment based on the selection of the one of the available timeslots;

detecting that medical records of the patient are attached into a communication application;

in response to detecting that the medical records are attached into the communication application, automatically generating and sending an electronic message through the communication application to the patient requesting permission to allow the professional access to medical records of the patient, wherein the electronic message includes a user interface element that the patient may use to approve or deny the request;

receiving permission from the patient to allow the professional access to the medical records; and

in response to receiving the permission, providing the user access to the medical records by generating and providing a link to the medical records in the communication application.

19. The method of claim 18, wherein generating the available timeslots further comprises generating a waitlist for at least one unavailable timeslot.

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